

OPEN PROBLEMS: RICCI YANG-MILLS SOLITONS ON NILPOTENT LIE GROUPS

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- (1) Is there a general condition on the bundle curvature that will guarantee long-time existence and convergence of the Ricci Yang-Mills flow to an Einstein Yang-Mills metric?
- (2) Is the Ricci Yang-Mills flow stable at Einstein Yang-Mills metrics in dimensions higher than 2?
- (3) What can be said about existence/convergence/stability/solitons in the case of G non-abelian?
- (4) Can we provide a classification of RYM solitons on k -step nilpotent Lie groups for a general k ?
- (5) Can we classify RYM solitons on other homogeneous bundles?
- (6) Do Ricci-Yang Mills solitons on nilpotent Lie groups have a natural extension to a special metric on a solvable Lie group?